

# SEQUENCE LISTING

#110 E. I. du Pont de Nemours and Company

#120 Chorismate Biosynthesis Enzymes

#130 BB-1159

#140

#141

#150 60/093,611

#151 July 21, 1998

#160 9

#170 Microsoft Office 97

#210 1

#211 1628

#212 DNA

#213 Sea mays

#400 1

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tggttaatca	actgoggcca	gttggtctct	agtaataata	gtaaaagaag	ttcactacat	1560
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#210 1

#211 436

#212 PRT

#213 Sea mays

<400> 2

Met Ala Ala Ser Ala Ser Ser Leu Leu Ala Ala Pro Ala Ser Ser Ser  
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Cys Gly Ala Ile Ser Pro Gln Leu Pro Arg Gly Ala Pro Ala Ala Ala  
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Ser Val Ala Ser Pro Ser Arg His Ser Cys Tyr Leu Leu Arg Ala Ser  
35 40 45

Pro Ser Arg Arg His Arg Ser Arg Phe Val Ala Asn Ala Ala Pro Thr  
50 55 60

Met Gln Pro Pro Ala Glu Ser Arg Val Ser Thr Val Val Asp Val Asp  
65 70 75 80

Leu Gly Asp Arg Ser Tyr Pro Ile Tyr Ile Gly Ala Gly Leu Leu Asp  
85 90 95

Glu Pro Asp Leu Leu Gln Arg His Val His Gly Lys Arg Val Leu Val  
100 105 110

Val Thr Asn Thr Thr Val Ala Pro Leu Tyr Leu Asp Lys Val Thr Trp  
115 120 125

Ala Leu Thr His Asn Asn Leu Asn Val Ser Val Glu Ser Val Ile Leu  
130 135 140

Pro Asp Gly Glu Lys Tyr Lys Asn Met Asp Thr Leu Met Lys Val Phe  
145 150 155 160

Asp Lys Ala Val Glu Ser Arg Phe Asp Arg Arg Cys Thr Phe Val Ala  
165 170 175

Leu Gly Gly Gly Val Ile Gly Asp Met Cys Gly Phe Ala Ala Ala Ala  
180 185 190

Phe Leu Arg Gly Val Asn Phe Ile Gln Ile Pro Thr Thr Leu Met Ala  
195 200 205

Gln Val Asp Ser Ser Val Gly Gly Lys Thr Gly Ile Asn His Pro Leu  
210 215 220

Gly Lys Asn Leu Ile Gly Ala Phe Tyr Gln Pro Gln Cys Val Leu Ile  
225 230 235 240

Asp Thr Asn Thr Leu Asn Thr Leu Pro Asp Arg Glu Leu Ala Ser Gly  
245 250 255

Ile Ala Glu Val Val Lys Tyr Gly Leu Ile Arg Asp Ala Pro Phe Phe  
260 265 270

Glu Trp Gln Glu Lys Asn Met Pro Lys Leu Leu Ala Arg Glu Pro Asn  
275 280 285

Ala Leu Ala Tyr Ala Ile Lys Arg Ser Cys Glu Asn Lys Ala Glu Val  
290 295 300

Val Ala Gln Asp Glu Lys Glu Ser Gly Leu Arg Ala Thr Leu Asn Leu  
305 310 315 320

Gly His Thr Phe Gly His Ala Ile Glu Thr Gly Thr Gly Tyr Gly Ala  
325 330 335

Trp Leu His Gly Glu Ala Val Ala Ala Gly Thr Val Met Ala Thr Asp  
340 345 350

Met Ser His Arg Leu Gly Trp Ile Asp Asp Ser Ile Arg Lys Arg Val  
355 360 365

Val Asp Ile Leu Lys Gln Ala Lys Leu Pro Ile Ala Pro Pro Glu Thr  
370 375 380

Met Thr Val Glu Lys Phe Lys Asn Ile Met Ala Val Asp Lys Lys Val  
385 390 395 400

Ala Asp Gly Leu Leu Arg Leu Ile Leu Leu Lys Gly Pro Leu Gly Cys  
405 410 415

Cys Val Phe Thr Gly Asp Tyr Asp Gly Asn Ala Leu Asp Glu Thr Leu  
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His Ala Phe Cys Asp Asn  
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<211> 1258  
<212> DNA  
<213> Oryza sativa

<400> 3  
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gcgcgcgcgc agagagtagg ggcgcgcgcg cctccctccc ctgcgcgtct cgcgcgcgtt 180  
gcgtctctcc cctgcgcgtt tccgcgcgcg ggcgcgcgtt cgcgcgcgtt gtcgcgcgcg 240  
gcgcgcgcgc tatgcgcgcg cgcgcgcgtt cgcgcgcgtt cgcgcgcgtt gtcgcgcgcg 300  
tgcgcgcgcg ggcgcgcgcg atctacatcg ggcgcgcgtt tctgcgcgcg cctgcgcgcg 360  
tgcgcgcgcg ttgttcgtgg aagaggtgtt tgggtgtgac caacaccacc gtcgcgcgcg 420  
tctacgttga gaaggtgtac tgggcaccca cgcacacaaa cccgaatgtt tctgtggaga 480  
gcgtgtgtct ggcgcgcgcg gagaagtaca aggcacgtgg cgcacgtgat aaggttttgc 540  
acaaggtggt cgcgcgcgcg ctgcgcgcgc ggtgcgcgtt tgttcgcgtt ggaggtggcg 600  
ttattgggga catgtgcgtt ttgcgcgcgt ctgcgcgtt ggcgcgcgtt aatttcatac 660  
agattcttcc tctctgtgat ggcgcgcgcg attcctctgt tggaggggaag acgcgcgcgt 720  
acatccattt ggcgcgcgcg ttaattggcg cgttctacca cccacaggtt gtactgatag 780  
acacgcgcgc actgaataca ttgcgcgcgc ggcgcgcgcg ttcagggata gctgaggtgg 840  
tgaagtatgg tctcataaga gatgcacgtt tttttgaatg gcaagagaaa aacatgcacg 900  
cattatttag aagagaccca agtgcctctg cctatgctat taagagatcg tctgaaaaaa 960  
aggtgtgagt ggtgtgtcag ggcgcgcgcg aaagtgtgtt cgcgcgcgcg cttaatctcg 1020  
gacatacatt tggccatgct atagaaaacg gaaatggcta tggagcatgg ctccatggcg 1080  
aggtgtgttg agctgggaca gttatggcag ctgcgcgcgt tccgcgcgtt ggttgatag 1140  
agaggtcatt caagaaacgg gcaattgaca taatagagaa agcgaaggtt caattacac 1200  
ctccagaggg catgcgcgtt gagaagtcca aaagtattat ggcgcgcgtt aagaaggttg 1260  
ctgagtgatt gctgaggtct atctctctga aaggaacctt ggcgcgcgtt gttttcactg 1320  
gagattactg ttcttcaggg tgcgcgcgtt gataaatt 1380

<210> 4  
<211> 436  
<212> PRT  
<213> Oryza sativa

<400> 4

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Ala Ala Ala Ala Ser Leu Pro Ser Pro Ser Arg Ala Ser Cys Ala Pro  
35 40 45  
Pro Leu Arg Ala Ser Ala Ala Arg Thr Leu Arg Ser Arg Val Val Ala  
50 55 60  
Ser Ala Ala Pro Ala Met Gln Pro Pro Pro Ala Ser Arg Val Ser Thr  
65 70 75 80  
Val Val Asp Val Asp Leu Gly Asp Arg Ser Tyr Pro Ile Tyr Ile Gly  
85 90 95  
Ala Gly Leu Leu Asp Glu Pro Asp Leu Leu Gln Arg His Val His Gly  
100 105 110  
Lys Arg Val Leu Val Val Thr Asn Thr Thr Val Ala Pro Leu Tyr Leu  
115 120 125  
Glu Lys Val Thr Trp Ala Leu Thr His Asn Asn Pro Asn Val Ser Val  
130 135 140  
Glu Ser Val Ile Leu Pro Asp Gly Glu Lys Tyr Lys Asp Met Gly Thr  
145 150 155 160  
Leu Met Lys Val Phe Asp Lys Ala Val Glu Ser Arg Leu Asp Arg Arg  
165 170 175  
Cys Thr Phe Val Ala Leu Gly Gly Gly Val Ile Gly Asp Met Cys Gly  
180 185 190  
Phe Ala Ala Ala Ala Phe Leu Arg Gly Val Asn Phe Ile Gln Ile Pro  
195 200 205  
Thr Thr Leu Met Ala Gln Val Asp Ser Ser Val Gly Gly Lys Thr Gly  
210 215 220  
Ile Asn His Pro Leu Gly Lys Asn Leu Ile Gly Ala Phe Tyr His Pro  
225 230 235 240  
Gln Cys Val Leu Ile Asp Thr Glu Thr Leu Asn Thr Leu Pro Asp Arg  
245 250 255  
Glu Leu Ala Ser Gly Ile Ala Glu Val Val Lys Tyr Gly Leu Ile Arg  
260 265 270  
Asp Ala Pro Phe Phe Glu Trp Gln Glu Lys Asn Met Pro Ala Leu Leu  
275 280 285  
Ala Arg Glu Pro Ser Ala Leu Ala Tyr Ala Ile Lys Arg Ser Cys Glu  
290 295 300  
Asn Lys Ala Glu Val Val Ala Gln Asp Glu Lys Glu Ser Gly Leu Arg  
305 310 315 320

Ala Thr Leu Asn Leu Gly His Thr Phe Gly His Ala Ile Glu Thr Gly  
 325 330 335

Thr Gly Tyr Gly Ala Trp Leu His Gly Ala Ala Val Ala Ala Gly Thr  
 340 345 350

Val Met Ala Ala Asp Met Ser His Arg Leu Gly Trp Ile Asp Glu Ser  
 355 360 365

Ile Lys Lys Arg Ala Ile Asp Ile Leu Glu Lys Ala Lys Leu Pro Ile  
 370 375 380

Thr Pro Pro Glu Ala Met Thr Val Glu Lys Phe Lys Ser Ile Met Ala  
 385 390 395 400

Val Asp Lys Lys Val Ala Asp Gly Leu Leu Arg Leu Ile Leu Leu Lys  
 405 410 415

Gly Pro Leu Gly Ser Cys Val Phe Thr Gly Asp Tyr Cys Ser Ser Arg  
 420 425 430

Ser Thr Cys Arg  
 435

1210> 5  
 1211> 1643  
 1212> DNA  
 1213> Glycine max

1400> 5  
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 gttattgttta ttgttgggtt tttaactcag caacacacaa accacacagt cgcacccatt 120  
 ccacgtgtga ttcccccaat ggtttccact gccacaaatt tctctctttc tctctgccc 180  
 aacaaacaaa ctcaatccc caaacccctct ttctttctca ataacaacca ttgtcacctc 240  
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 gctcttggtg gtgtgtgtgt ttggacacag tgtgtgtttg ctgcccctgc cttaactagt 720  
 ggtgttaatt ttaaccgat tctacaaact gtgatggcac aggtcagatc ttcatgtgtt 780  
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 gggctagcac aggttatcaa gtatgggtct attagggatg cagagttttt ttagtggcaa 960  
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 cagtgggttc atggagagc ttgtgcaggt ggcacggtaa tggctgttga catgtcatat 1200  
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<211> 437  
<212> PRT  
<213> Glycine max

<400> 6

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Gln	Thr	Pro	Ile	Pro	Lys	Pro	Ser	Phe	Phe	Ser	Asn	Asn	Asn	His	Leu
		20						25					30		
His	Phe	Asn	Ser	Asn	Asn	Asn	Trp	Ala	Trp	Ala	Ser	Val	Ser	Thr	Ser
		35					40					45			
Arg	Lys	Ser	Arg	Ile	Cys	Ala	Thr	Ser	Ser	Gln	Val	Met	Asp	Pro	Ser
	50					55					60				
Ala	Ala	Lys	Ser	Glu	Pro	Ala	Leu	Pro	Thr	Ile	Val	Glu	Val	Asp	Leu
	65				70					75					80
Gly	Ser	Arg	Ser	Tyr	Pro	Ile	Tyr	Ile	Gly	Ser	Gly	Leu	Leu	Asn	Gln
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Pro	Asp	Tyr	Leu	Gln	Arg	His	Val	His	Gly	Lys	Arg	Val	Leu	Val	Val
		100						105					110		
Thr	Asn	Glu	Thr	Val	Ala	Pro	Leu	Tyr	Leu	Asp	Lys	Val	Val	Asp	Ala
		115					120					125			
Leu	Thr	Arg	Gly	Asn	Pro	Asn	Val	Ser	Val	Glu	Ser	Val	Ile	Leu	Pro
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Asp	Gly	Glu	Gln	Tyr	Lys	Asp	Met	Asp	Thr	Leu	Met	Lys	Val	Phe	Asp
	145				150					155					160
Lys	Ala	Ile	Glu	Ser	Arg	Leu	Asp	Arg	Arg	Cys	Thr	Phe	Val	Ala	Leu
			165						170					175	
Gly	Gly	Gly	Val	Ile	Gly	Asp	Met	Cys	Gly	Phe	Ala	Ala	Ser	Ala	Phe
		180					185						190		
Leu	Arg	Gly	Val	Asn	Phe	Ile	Gln	Ile	Pro	Thr	Thr	Val	Met	Ala	Gln
		195					200					205			
Val	Asp	Ser	Ser	Val	Gly	Gly	Lys	Thr	Gly	Ile	Asn	His	Arg	Leu	Gly
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Lys	Asn	Met	Ile	Gly	Thr	Phe	Tyr	Gln	Pro	Gln	Cys	Val	Leu	Ile	Asp
	225				230					235					240
Thr	Asp	Thr	Leu	Asn	Thr	Leu	Pro	Asp	Arg	Glu	Leu	Ala	Ser	Gly	Leu
			245						250					255	
Ala	Glu	Val	Ile	Lys	Tyr	Gly	Leu	Ile	Arg	Asp	Ala	Glu	Phe	Phe	Glu
		260					265						270		
Trp	Gln	Glu	Lys	Asn	Met	His	Leu	Leu	Leu	Ala	Arg	Asp	Pro	Ser	Val
	275						280					285			

Met Ala Tyr Ala Ile Lys Arg Ser Cys Glu Asn Lys Ala Glu Val Val  
290 295 300

Ser Leu Asp Gln Lys Glu Ser Gly Leu Arg Ala Thr Leu Asn Leu Gly  
305 310 315 320

His Thr Phe Gly His Ala Ile Glu Thr Gly Val Gly Tyr Gly Gln Trp  
325 330 335

Leu His Gly Glu Ala Val Ala Ala Gly Thr Val Met Ala Val Asp Met  
340 345 350

Ser Tyr Arg Leu Gly Trp Ile Asp Asp Ser Leu Val Lys Arg Val Gly  
355 360 365

Asp Ile Leu Lys Gln Ala Lys Leu Pro Thr Ala Pro Pro Glu Thr Val  
370 375 380

Thr Val Asp Met Phe Lys Ser Val Met Ala Val Asp Lys Lys Val Ala  
385 390 395 400

Asp Gly Leu Leu Arg Leu Ile Leu Leu Lys Gly Pro Leu Gly Asn Cys  
405 410 415

Val Phe Thr Gly Asp Tyr Asp Arg Lys Ala Leu Asp Asn Thr Leu Arg  
420 425 430

Ala Phe Cys Lys Ser  
435

<210> 7

<211> 1103

<212> DNA

<213> Triticum aestivum

<400> 7

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<210> 8

<211> 268

<212> PRT

<213> Triticum aestivum

<400> 8

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Pro Thr Thr Leu Met Ala Gln Val Asp Ser Ser Val Gly Gly Lys Thr  
35 40 45

Gly Ile Asn His Pro Leu Gly Lys Asn Leu Ile Gly Ala Phe Tyr Gln  
50 55 60

Pro Gln Cys Val Leu Ile Asp Thr Glu Thr Leu Asn Thr Leu Pro Asp  
65 70 75 80

Arg Glu Leu Ala Ser Gly Val Ala Glu Val Val Lys Tyr Gly Leu Ile  
85 90 95

Arg Asp Ala Pro Phe Phe Glu Trp Gln Glu Lys Asn Met Ala Ala Ile  
100 105 110

Leu Ala Arg Gln Pro Ser Ala Leu Thr Tyr Ala Ile Lys Arg Ser Cys  
115 120 125

Glu Asn Lys Ala Glu Val Val Ala Gln Asp Glu Lys Glu Ser Gly Leu  
130 135 140

Arg Ala Thr Leu Asn Leu Gly His Thr Phe Gly His Ala Ile Glu Thr  
145 150 155 160

Gly Leu Gly Tyr Gly Glu Trp Leu His Gly Glu Ala Val Ala Ala Gly  
165 170 175

Thr Val Met Ala Ala Asp Met Ser Tyr Arg Leu Gly Trp Ile Asp Glu  
180 185 190

Ser Ile Lys Lys Arg Thr Phe Asp Ile Leu Asp Gln Ala Lys Leu Pro  
195 200 205

Val Thr Ser Pro Lys Gly Met Thr Val Glu Lys Phe Arg Asn Ile Met  
210 215 220

Ala Val Asp Lys Lys Val Ala Asp Gly Leu Leu Arg Leu Ile Leu Leu  
225 230 235 240

Lys Gly Pro Leu Gly Gly Cys Val Phe Thr Gly Glu Tyr Asp Arg Lys  
245 250 255

Ala Leu Asp Glu Thr Leu Arg Ala Phe Cys Asp Asn  
260 265

<410> 9

<411> 362

<412> PRT

<413> Escherichia coli



<400> 9

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Ser Gly Glu Gln Val Met Leu Val Thr Asn Glu Thr Leu Ala Pro Leu  
35 40 45  
Tyr Leu Asp Lys Val Arg Gly Val Leu Glu Gln Ala Gly Val Asn Val  
50 55 60  
Asp Ser Val Ile Leu Pro Asp Gly Glu Gln Tyr Lys Ser Leu Ala Val  
65 70 75 80  
Leu Asp Thr Val Phe Thr Ala Leu Leu Gln Lys Pro His Gly Arg Asp  
85 90 95  
Thr Thr Leu Val Ala Leu Gly Gly Gly Val Val Gly Asp Leu Thr Gly  
100 105 110  
Phe Ala Ala Ala Ser Tyr Gln Arg Gly Val Arg Phe Ile Gln Val Pro  
115 120 125  
Thr Thr Leu Leu Ser Gln Val Asp Ser Ser Val Gly Gly Lys Thr Ala  
130 135 140  
Val Asn His Pro Leu Gly Lys Asn Met Ile Gly Ala Phe Tyr Gln Pro  
145 150 155 160  
Ala Ser Val Val Val Asp Leu Asp Cys Leu Lys Thr Leu Pro Pro Arg  
165 170 175  
Glu Leu Ala Ser Gly Leu Ala Glu Val Ile Lys Tyr Gly Ile Ile Leu  
180 185 190  
Asp Gly Ala Phe Phe Asn Trp Leu Glu Glu Asn Leu Asp Ala Leu Leu  
195 200 205  
Arg Leu Asp Gly Pro Ala Met Ala Tyr Cys Ile Arg Arg Cys Cys Glu  
210 215 220  
Leu Lys Ala Glu Val Val Ala Ala Asp Glu Arg Glu Thr Gly Leu Arg  
225 230 235 240  
Ala Leu Leu Asn Leu Gly His Thr Phe Gly His Ala Ile Glu Ala Glu  
245 250 255  
Met Gly Tyr Gly Asn Trp Leu His Gly Glu Ala Val Ala Ala Gly Met  
260 265 270  
Val Met Ala Ala Arg Thr Ser Gln Arg Leu Gly Gln Phe Ser Ser Ala  
275 280 285  
Glu Thr Gln Arg Ile Ile Thr Leu Leu Lys Arg Ala Gly Leu Pro Val  
290 295 300  
Asn Gly Pro Arg Glu Met Ser Ala Gln Ala Tyr Leu Pro His Met Leu  
305 310 315 320

Arg Asp Lys Lys Val Leu Ala Gly Glu Met Arg Leu Ile Leu Pro Leu  
325 330 335

Ala Ile Gly Lys Ser Glu Val Arg Ser Gly Val Ser His Glu Leu Val  
340 345 350

Leu Asn Ala Ile Ala Asp Cys Gln Ser Ala  
355 360